

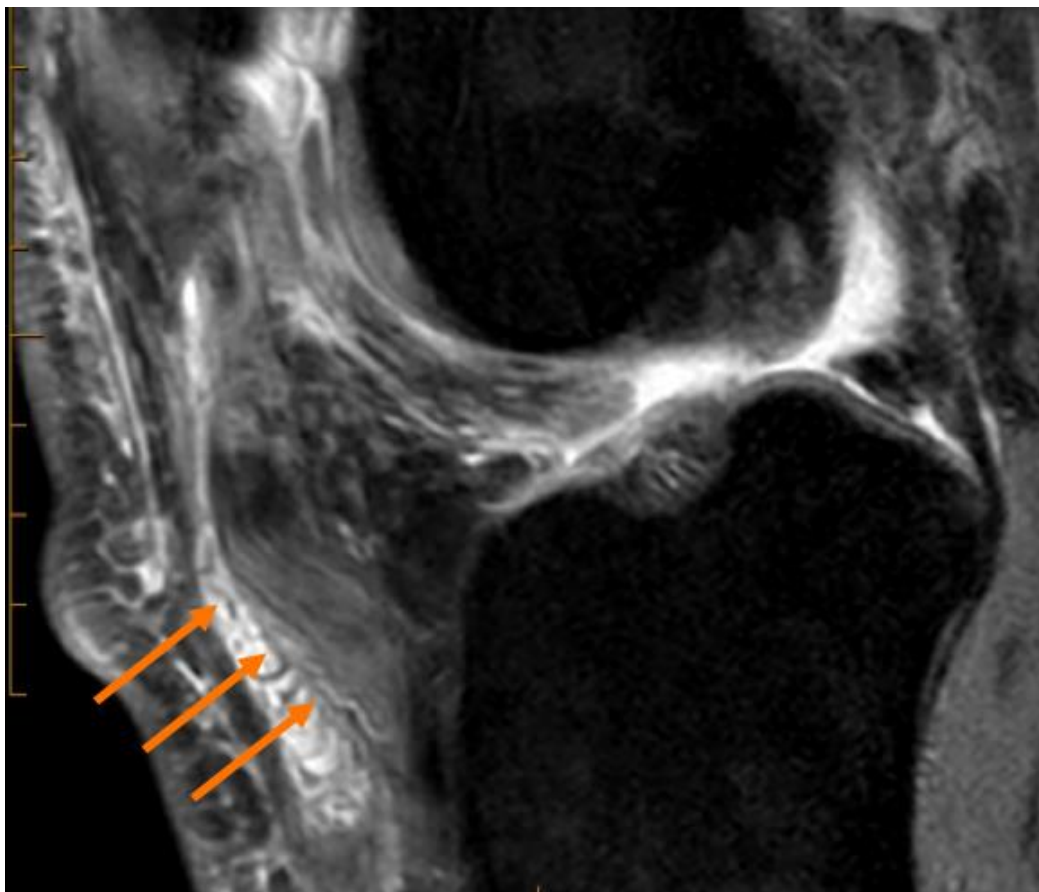
**27 yr old male recent episode of knee giving way during football. Previous history ALL.**

MRI Left Knee (Standard protocol PD and PD fat-sat sequences):

- Full thickness tear/rupture patellar tendon at junction proximal and middle thirds
- Fluid/haematoma occupies tendon cleft and surrounds local intra-articular structures
- Superior retraction of patella (patella alta) due to unopposed quadriceps action
- Residual tendon is tendinopathic
- Features of tibial tuberosity apophysitis / Osgood Schlatter Disease
- Inferior patellar pole is preserved (no avulsion or marrow oedema)



**PD Sagittal** – Complete patellar tendon rupture & tibial tuberosity fragmentation (OS Disease)



**PD SPAIR Sagittal** – Tendinopathy of residual intact fibres

## Discussion

- High-grade force in athletics (fall on flexed knee with foot planted → eccentric contraction)
- Proximal 1/3 of patellar tendon most common with sports injury
- Mid-portion of tendon torn with underlying chronic medical conditions (DM, corticosteroid use)
- Often superimposed on underlying chronic tendinopathy (all aetiologies including Jumper's knee and OSD)
- Our case has remote Hx of ALL (likely corticosteroid exposure) and also features of Osgood Schlatter disease
- May be seen in setting of previous surgery
  - Total knee arthroplasty
  - ACL reconstruction (with middle 1/3 patellar tendon graft harvest)
- Steroid injections increase risk for tendon rupture
- Patellofemoral mal-tracking – chronic overload on tendon may play role in weakening tendon
- Surgical repair required (considered an orthopaedic emergency)

## Differential Diagnoses

- Postsurgical Change
  - ACL graft harvest; arthroscopic portals, patellar tendon transposition, previous tendon repair
- Patellar fracture (patellar marrow oedema and mild changes in adjacent tendon)
- Quadriceps tendon tear (inferior retraction patella with thickening/redundancy of patellar tendon)
- Magic Angle Artifact (occurs in portion of tendon at 55° to main magnetic field)

## Further Reading:

- Peace KA et al: Imaging the infrapatellar tendon in the elite athlete. *Clin Radiol.* 61(7):570-8, 2006
- Gilmore JH et al: Reconstruction techniques and clinical results of patellar tendon ruptures: Evidence today. *Knee.* 22(3):148-55, 2015
- Yablon CM et al: Magnetic resonance imaging of the extensor mechanism. *Magn Reson Imaging Clin N Am.* 22(4):601-20, 2014
- Brooks P: Extensor mechanism ruptures. *Orthopedics.* 32(9), 2009
- Dupuis CS et al: Injuries and conditions of the extensor mechanism of the pediatric knee. *Radiographics.* 29(3):877-86, 2009
- Stat Dx online